

IN THE CLAIMS:

The claims have been amended as follows:

1. (Currently Amended) A method for transmitting signaling system seven (SS7) user part messages between SS7 signaling points comprising:
 - (a) receiving, at a first signal transfer point (STP) configured to perform SS7 message transfer part layer 3 routing and global title translation, a first SS7 user part message sent from a first SS7 signaling point over an SS7 signaling link;
 - (b) at the first signal transfer point, encapsulating the first SS7 user part message in a first internet protocol (IP) packet; and
 - (c) from the first signal transfer point, transmitting the first IP packet to a second SS7 signaling point node over an IP network.
2. (Original) The method of claim 1 wherein encapsulating the first SS7 user part message in a first IP packet includes adding a transmission control protocol (TCP) header to the first SS7 user part message.
3. (Original) The method of claim 1 wherein encapsulating the first SS7 user part message in a first IP packet includes adding a user datagram protocol (UDP) header to the first SS7 user part message.
4. (Original) The method of claim 1 wherein encapsulating the first SS7 user part message in a first IP packet includes adding an application-level sequence number to the first SS7 user part message.

5. (Currently Amended) The method of claim 1 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ includes transmitting the first IP packet without terminating user part layer communications.
6. (Currently Amended) The method of claim 1 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a local service switching point (SSP), and the IP network thereby functions as an SS7 A link between the first STP and the SSP.
7. (Currently Amended) The method of claim 1 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP of the same hierarchical level as the first STP, and the IP network thereby replaces an SS7 B link between the first and second STPs.
8. (Currently Amended) The method of claim 1 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP, the first and second STPs comprising a mated pair of STPs, and the IP network thereby functions as an SS7 C link between the first and second STPs.
9. (Currently Amended) The method of claim 1 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP of a different hierarchical level than the first STP, and the IP network thereby functions as an SS7 D link between the first and second STPs.

10. (Currently Amended) The method of claim 1 transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a service switching point (SSP) located in a different local area from the first STP, and the IP network thereby functions as an SS7 E link between the first STP and the SSP.

11-47. (Canceled)

48. (Currently Amended) A signaling system seven/internet protocol (SS7/IP) user part message communicator comprising computer-executable instructions embodied in a computer-readable medium for performing steps comprising:

- (a) receiving, at a first signal transfer point (STP) configured to perform SS7 message transfer part layer 3 routing and global title translation, a first SS7 user part message sent from a first SS7 signaling point over an SS7 signaling link;
- (b) at the first signal transfer point, encapsulating the first SS7 user part message in a first IP packet; and
- (c) from the first signal transfer point, transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network.

49. (Original) The SS7/IP user part message communicator of claim 48 wherein encapsulating the first SS7 user part message in a first IP packet includes adding a transmission control protocol (TCP) header to the first SS7 user part message.

50. (Original) The SS7/IP user part message communicator of claim 48 wherein encapsulating the first SS7 user part message in a first IP packet includes adding a user datagram protocol (UDP) header to the first SS7 user part message.

51. (Original) The SS7/IP user part message communicator of claim 48 wherein encapsulating the first SS7 user part message in a first IP packet includes adding an application-level sequence number to the first SS7 user part message.
52. (Original) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a second SS7 signaling point includes transmitting the first IP packet without terminating user part layer communications.
53. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a service switching point (SSP), and the IP network thereby functions as an SS7 A link between the first STP and the SSP.
54. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP of the same hierarchical level as the first STP, and the IP network thereby replaces an SS7 B link between the first and second STPs.
55. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP, the first and second STPs comprising a mated pair of STPs, and the IP network thereby functions as an SS7 C link between the first and second STPs.

56. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a second STP of a different hierarchical level than the first STP, and the IP network thereby functions as an SS7 D link between the first and second STPs.
57. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein transmitting the first IP packet to a ~~second SS7 signaling point node~~ over an IP network comprises transmitting the IP packet to a service switching point (SSP) located in a different local area from the first STP, and the IP network thereby functions as an SS7 E link between the first STP and SSP.
- 58-78. (Canceled)
79. (Previously Presented) The method of claim 1 wherein the first SS7 user part message comprises an ISDN user part message.
80. (Currently Amended) The method of claim 1 wherein receiving a first SS7 user part message includes intercepting a first SS7 user part message addressed to an SS7 point code of the ~~second SS7 signaling point node~~, wherein encapsulating the first SS7 user part message in a first IP packet includes inserting a destination IP address corresponding to the ~~second SS7 signaling point node~~ in the IP packet, and wherein the ~~second SS7 signaling point node~~ comprises a destination end office for a call associated with the first SS7 user part message.
81. (Previously Presented) The SS7/IP user part message communicator of claim 48 wherein the first SS7 user part message comprises an ISDN user part message.

82. (Currently Amended) The SS7/IP user part message communicator of claim 48 wherein receiving a first SS7 user part message includes intercepting a first SS7 user part message addressed to an SS7 point code of the ~~second SS7 signaling point node~~, wherein encapsulating the first SS7 user part message in a first IP packet includes inserting a destination IP address corresponding to the ~~second SS7 signaling point node~~ in the IP packet, and wherein the ~~second SS7 signaling point node~~ comprises a destination end office for a call associated with the first SS7 user part message.

83. (Currently Amended) The method of claim 4 A method for transmitting signaling system seven (SS7) user part messages between SS7 signaling points comprising:

(a) receiving, at a first signal transfer point (STP), a first SS7 user part message sent from a first SS7 signaling point over an SS7 signaling link, wherein receiving a first SS7 user part message at [[an]] the first STP includes receiving a first SS7 user part message at an SS7 link interface module within [[an]] the first STP having, wherein the first STP includes a distributed internal processing architecture including at least one SS7 link interface module for communicating sending and receiving SS7 signaling messages over SS7 signaling links, at least one data communications module for communicating signaling messages over IP signaling links sending and receiving SS7 user part messages over IP signaling links and for extracting SS7 user part messages from inbound IP messages, and an interprocessor message transport (IMT) a bus for interconnecting the link

interface module and the data communications module and wherein the link interface module and the data communications module each include an SS7 message MTP level 3 routing function for routing SS7 user part messages to a module in the first STP associated with outbound signaling links for the SS7 user part messages;

(b) at the first signal transfer point, encapsulating the first SS7 user part message in a first internet protocol (IP) packet; and

(c) from the first signal transfer point, transmitting the first IP packet to a node over an IP network.

84. (Currently Amended) The method of claim 83 comprising, at the link interface module, determining that the first SS7 user part message should be routed to an IP node and forwarding the first SS7 user part message to the data communications module via the [[IMT]] bus.

85. (Currently Amended) The method of claim 84 wherein encapsulating the SS7 user part message in a first IP packet includes receiving the first SS7 user part message at the data communications module and encapsulating the first SS7 user part message in an IP packet addressed to the ~~second SS7 signaling point node~~.

86. (Currently Amended) ~~The SS7/IP user part message communicator of claim 48 A signaling system seven/internet protocol (SS7/IP) user part message communicator comprising computer-executable instructions embodied in a computer-readable medium for performing steps comprising:~~

- (a) receiving, at a first signal transfer point (STP), a first SS7 user part message sent from a first SS7 signaling point over an SS7 signaling link, wherein receiving a first SS7 user part message at [[an]] the first STP includes receiving a first SS7 user part message at an SS7 link interface module within [[an]] the first STP having, wherein the first STP includes a distributed internal processing architecture including at least one SS7 link interface module for communicating signaling messages over SS7 signaling links sending and receiving SS7 user part messages over IP signaling links and for extracting SS7 user part messages from inbound IP messages, at least one data communications module for communicating signaling messages over IP signaling links, and an interprocessor message transport (IMT) a bus for interconnecting the link interface module and the data communication module and wherein the link interface module and the data communications module each include an SS7 MTP level 3 routing function for routing SS7 user part messages to a module in the first STP associated with outbound signaling links for the SS7 user part messages;
- (b) at the first signal transfer point, encapsulating the first SS7 user part message in a first IP packet; and
- (c) from the first signal transfer point, transmitting the first IP packet to a node over an IP network.

87. (Currently Amended) The SS7/IP user part message communicator of claim 86 comprising, at the link interface module, determining that the first SS7 user part

message should be routed to an IP node and forwarding the first SS7 user part message to the data communications module via the [[IMT]] bus.

88. (Currently Amended) The SS7/IP user part message communicator of claim 87 wherein encapsulating the SS7 user part message in a first IP packet includes receiving the first SS7 user part message at the data communications module and encapsulating the first SS7/IP user part message in an IP packet addressed to the ~~second SS7 signaling point node~~.